UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/791,441	03/01/2004	Sang Kyoon Hyun	CISCP854	3445

26541 7590 06/03/2009

Cindy S. Kaplan
P.O. BOX 2448
SARATOGA, CA 95070

EXAMINER	
HO, HUY C	

ART UNIT	PAPER NUMBER
2617	

MAIL DATE	DELIVERY MODE
06/03/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/791,441	HYUN ET AL.	
	Examiner	Art Unit	
	HUY C. HO	2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 February 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,5-10 and 14-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,5-10 and 14-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03/01/2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 02/02/2009 have been fully considered but they are moot and not persuasive because the argued features, i.e., measuring link delays between a root bridge and a non-root bridges, calculating a common time slot value based on the measured link delays, aligning contention timing boundaries based on the measured link delays and the common time slot values to coordinate transmissions and reducing the probability of collision in a carrier-sense multiple access with collision avoidance scheme, read upon Young, Moerder and Nemoto as follows.

Young teaches a method and system for increasing overall network throughput over a WLAN, the system dynamically selects an initial value for a contention window based on the network load conditions in the WLAN, which comprising stations and access points using IEEE 802.11 standard and its variations using carrier sense multiple access with Collision Avoidance scheme (CSMA/CA), the contention window values are adjusted accordingly to the network overall delays such as relaying traffic between an access point and end stations, station waiting time for transmission without collision via the medium, back-off period time (see Young, the abstract, col 1 lines 20-67, col 2 lines 1-27, col 6 lines 50-67, col 8 lines 12-67). Young teaches and discloses collision ratio being calculated for setting the contention window values, the collision ratio is calculated by number of collisions to summation of the number of total transmissions and number of collisions, therefore this helps the system achieving its higher performance in respect to avoiding collision possibilities in the network (see Young, col 2 lines 30-67, col 3 lines 1-5, col 9 lines 20-67, col 10 lines 1-40), therefore Young discloses reducing the probability of collision in a carrier-sense multiple access with collision avoidance scheme. Moerder teaches method and system for time synchronization in a communication system and disclosing signal delays by the sum of the transmission delays over forward uplinks and forward downlinks between remote units and a hub station (see Moerder, the abstract, col 2 lines 15-27, 55-67, col 4 lines 1-23), therefore Moerder discloses link delays over forward uplinks and forward downlinks between remote units and a hub station. Nemoto teaches radio communication system for calculating transmission

timing as in time slot units based on propagation time between terminals and a base station (see Nemoto, the abstract, col 2 lines 20-60, col 3 lines 30-67, col 4 lines 1-67), therefore Nemoto discloses a common time slot unit based on propagation time between terminals and a base station. As such, references Young, Moerder and Nemoto in combined, teach and disclose a method and system for measuring link delays between a root bridge and a non-root bridges, calculating a common time slot value based on the measured link delays, aligning contention timing boundaries based on the measured link delays and the common time slot values to coordinate transmissions and reducing the probability of collision in a carrier-sense multiple access with collision avoidance scheme.

As a result, the argued features were written such that they read upon the cited references.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. **Claims 1, 5-10 and 14-26** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Young et al. (6,965,942)** in view of **Moerder (6,674,730)** and further in view of **Nemoto (7,006,534).**

Consider claim 1, (Currently Amended) Young discloses a method for operating a point-to-multipoint wireless communication network **(see the abstract)**, said method comprising:

measuring delays between a root bridge and a plurality of non-root bridges **(the abstract, col 2 lines 30-48, col 5 lines 4-9, , col 10 lines 45-67, col 11 lines 1-3, disclosing network conditions, i.e., number of transmissions/receptions, collisions are monitored between stations and an access point in within a WLAN)**;

using said measured delays to coordinate transmissions in a CSMA/CA scheme **(col 1 lines 55-64, col 2 lines 30-48, col 6 lines 50-67, col 7 lines 1-5, col 10 lines 45-67, col 11 lines 1-3, describing usage of the monitored condition of network traffic load).**

calculating a common time slot value based on said measured link delays;

distributing said measured link delays and said time slot value within said point-to-multipoint wireless communication network **(col 2 lines 35-45, col 4 lines 60-67, col 5 lines 25-35)**; and

aligning contention timing boundaries based on said measured link delays to coordinate transmissions and reduce the probability of collision in a carrier-sense multiple access with collision avoidance scheme **(col 4 lines 25-45, col 8 lines 55-67, col 9 lines 10-67, col 10 lines 1-40)**.

Young does not specifically show link delays however Young discloses a method and system for improving system throughput where station transmission delays are collected, stations communicate RTS and CTS messages in order to set their NAV accordingly **(see Young, col 7 lines 48-55, col 8 lines 20-26),** thus Young discloses a system communication delays. Moerder teaches method and system for time synchronization in wireless communication, where Moerder clearly discloses system link delays **(see Moerder, col 2 lines 60-67, col 4 lines 1-24, col 6 lines 20-30)**, thus Moerder discloses link delays. Since Young and Moerder both teach a system and method for improving timing in a wireless link communication system, thus it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to modify Young's teachings by combining teachings of Moerder of transmission link delays over forward uplinks and forward downlinks between remote units and a hub

station, so as to providing efficiency for data transmission in a wireless communication network comprising a plurality of remote units as taught by Moerder (see Moerder, col 1 lines 15-50).

Young as modified by Moerder does not show a common time slot, however, Young discloses method and system improving throughput in a network, where the system discloses calculation of the number of transmissions over the network, number of collisions taking into account of carrier sense collision **(see col 9 lines 20-67),** thus Young discloses system communication transmissions with time involved. Nemoto teaches radio communication system for calculating transmission timing as in time slot units based on propagation time between terminals and a base station (see Nemoto, the abstract, col 2 lines 20-60, col 3 lines 30-67, col 4 lines 1-67), therefore Nemoto discloses a common time slot unit based on propagation time between terminals and a base station, thus Nemoto discloses a system time slot being calculated. Since Young, Moerder and Nemoto teach data communication system and method, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to modify teachings of Young, as modified by Moerder, and combining teaching of Nemoto about calculating of common time slot units based on propagation time between terminals and a base station, so as to improve radio communication allocation for a large number of users and preventing interference of communications between parties, preventing collisions of radio signals due to propagation delay difference, as discussed by Nemoto (see Nemoto, col 1 lines 10-67, col 2 lines 1-15).

Consider claim 8, (Currently Amended) Young discloses method for operating a node in a point-to-multipoint wireless communication network **(see the abstract)**, said method comprising:

receiving a measured delay and a system slot time from another node **(col 2 lines 35-67, col 3 lines 1-5, col 6 lines 50-67, col 7 lines 1-5, 50-55, col 8 lines 37-50, col 10 lines 45-67, col 11 lines 1-3);**

using said measured delay and said system slot time to coordinate transmissions and reduce the probability of collision in a CSMA/CA scheme **(col 1 lines 55-64, col 2 lines 30-48, col 6 lines 50-67, col 7 lines 1-5, col 10 lines 45-67, col 11 lines 1-3),** wherein contention timing boundaries are aligned based on said measured link delay and said common slot time **(col 4 lines 25-45, col 8 lines 55-67, col 9 lines 10-20, col 10 lines 1-40).**

Young does not specifically show link delays however Young discloses a method and system for improving system throughput where station transmission delays are collected, stations communicate RTS and CTS messages in order to set their NAV accordingly (**see Young, col 7 lines 48-55, col 8 lines 20-26),** thus Young discloses a system communication delays. Moerder teaches method and system for time synchronization in wireless communication, where Moerder clearly discloses system link delays (**see Moerder, col 2 lines 60-67, col 4 lines 1-24, col 6 lines 20-30**), thus Moerder discloses link delays. Since Young and Moerder both teach a system and method for improving timing in a wireless link communication system, thus it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to modify Young's teachings by combining teachings of Moerder of transmission link delays over forward uplinks and forward downlinks between remote units and a hub station, so as to providing efficiency for data transmission in a wireless communication network comprising a plurality of remote units as taught by Moerder (see Moerder, col 1 lines 15-50).

Young as modified by Moerder does not show a common time slot, however, Young discloses method and system improving throughput in a network, where the system discloses calculation of the number of transmissions over the network, number of collisions taking into account of carrier sense collision (**see col 9 lines 20-67),** thus Young discloses system communication transmissions with time involved. Nemoto teaches radio communication system for calculating transmission timing as in time slot units based on propagation time between terminals and a base station (see Nemoto, the abstract, col 2 lines 20-60, col 3 lines 30-67, col 4 lines 1-67), therefore Nemoto discloses a common time slot unit based on propagation time between terminals and a base station, thus Nemoto discloses a system time slot being calculated. Since Young, Moerder and Nemoto teach data communication system and method, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to modify teachings of Young, as modified by Moerder, and combining teaching of Nemoto about calculating of common time slot units based on propagation time between terminals and a base station, so as to improve radio communication allocation for a large number of users and preventing interference of communications between parties, preventing collisions of radio signals due to propagation delay difference, as discussed by Nemoto (see Nemoto, col 1 lines 10-67, col 2 lines 1-15).

Consider claim 9, (Currently Amended) Young discloses a method for operating a point-to-multipoint wireless communication network (**see the abstract)**, said method comprising:

measuring delays between an access point and a plurality of stations (**the abstract, col 2 lines 30-48, col 5 lines 4-9, col 10 lines 45-67, col 11 lines 1-3, disclosing network conditions, i.e., number of transmissions/receptions, collisions are monitored between stations and access point in within a WLAN**);

using said measured delays to coordinate transmissions and reduce the probability of collision in a CSMA/CA scheme (**see col 1 lines 55-64, col 2 lines 30-48, col 6 lines 50-67, col 7 lines 1-5, col 10 lines 45-67, col 11 lines 1-3),**

wherein distributing said measured link delays and time slot value within said point-to-multipoint wireless communication network ((**col 2 lines 35-45, col 4 lines 60-67, col 5 lines 25-35**); and

aligning contention timing boundaries based on said measured link delays (**col 4 lines 25-45, col 8 lines 55-67, col 9 lines 10-20, col 10 lines 1-40**).

Young does not specifically show link delays however Young discloses a method and system for improving system throughput where station transmission delays are collected, stations communicate RTS and CTS messages in order to set their NAV accordingly (**see Young, col 7 lines 48-55, col 8 lines 20-26),** thus Young discloses a system communication delays. Moerder teaches method and system for time synchronization in wireless communication, where Moerder clearly discloses system link delays (**see Moerder, col 2 lines 60-67, col 4 lines 1-24, col 6 lines 20-30)**, thus Moerder discloses link delays. Since Young and Moerder both teach a system and method for improving timing in a wireless link communication system, thus it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to modify Young's teachings by combining teachings of Moerder of transmission link delays over forward uplinks and forward downlinks between remote units and a hub station, so as to providing efficiency for data transmission in a wireless communication network comprising a plurality of remote units as taught by Moerder (see Moerder, col 1 lines 15-50).

Young as modified by Moerder does not show a common time slot, however, Young discloses method and system improving throughput in a network, where the system discloses calculation of the number of transmissions over the network, number of collisions taking into account of carrier sense collision **(see col 9 lines 20-67),** thus Young discloses system communication transmissions with time involved. Nemoto teaches radio communication system for calculating transmission timing as in time slot units based on propagation time between terminals and a base station (see Nemoto, the abstract, col 2 lines 20-60, col 3 lines 30-67, col 4 lines 1-67), therefore Nemoto discloses a common time slot unit based on propagation time between terminals and a base station, thus Nemoto discloses a system time slot being calculated. Since Young, Moerder and Nemoto teach data communication system and method, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to modify teachings of Young, as modified by Moerder, and combining teaching of Nemoto about calculating of common time slot units based on propagation time between terminals and a base station, so as to improve radio communication allocation for a large number of users and preventing interference of communications between parties, preventing collisions of radio signals due to propagation delay difference, as discussed by Nemoto (see Nemoto, col 1 lines 10-67, col 2 lines 1-15).

Consider claim 10, (Currently Amended) Young discloses an apparatus for operating node in a point-to-multipoint wireless communication network **(see the abstract)**, said apparatus comprising:

a delay counter that measures delays between a root bridge and plurality of non-root bridges **(figures 3 and 4, col 9 lines 20-35)**,

a MAC processor that calculates time slot value based on said measured link delay, distributes said measured link delays and said common time slot value within said point-to-multipoint wireless communication network **(col 2 lines 35-45, col 4 lines 60-67, col 5 lines 25-35)**, uses said measured link delays to coordinate transmissions and reduce the probability of collision in a CSMA/CA scheme **(figure 2, col 1 lines 35-40, col 5 lines 35-40, 50-67)**, and aligns contention timing boundaries based on said measured link delays and said common time slot values **(col 4 lines 25-45, col 8 lines 55-67, col 9 lines 10-20, col 10 lines 1-40)**.

Young does not specifically show link delays however Young discloses a method and system for improving system throughput where station transmission delays are collected, stations communicate RTS and CTS messages in order to set their NAV accordingly (**see Young, col 7 lines 48-55, col 8 lines 20-26),** thus Young discloses a system communication delays. Moerder teaches method and system for time synchronization in wireless communication, where Moerder clearly discloses system link delays (**see Moerder, col 2 lines 60-67, col 4 lines 1-24, col 6 lines 20-30)**, thus Moerder discloses link delays. Since Young and Moerder both teach a system and method for improving timing in a wireless link communication system, thus it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to modify Young's teachings by combining teachings of Moerder of transmission link delays over forward uplinks and forward downlinks between remote units and a hub station, so as to providing efficiency for data transmission in a wireless communication network comprising a plurality of remote units as taught by Moerder (see Moerder, col 1 lines 15-50).

Young as modified by Moerder does not show a common time slot, however, Young discloses method and system improving throughput in a network, where the system discloses calculation of the number of transmissions over the network, number of collisions taking into account of carrier sense collision (**see col 9 lines 20-67),** thus Young discloses system communication transmissions with time involved. Nemoto teaches radio communication system for calculating transmission timing as in time slot units based on propagation time between terminals and a base station (see Nemoto, the abstract, col 2 lines 20-60, col 3 lines 30-67, col 4 lines 1-67), therefore Nemoto discloses a common time slot unit based on propagation time between terminals and a base station, thus Nemoto discloses a system time slot being calculated. Since Young, Moerder and Nemoto teach data communication system and method, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to modify teachings of Young, as modified by Moerder, and combining teaching of Nemoto about calculating of common time slot units based on propagation time between terminals and a base station, so as to improve radio communication allocation for a large number of users and preventing interference of communications between parties, preventing collisions of radio signals due to propagation delay difference, as discussed by Nemoto (see Nemoto, col 1 lines 10-67, col 2 lines 1-15).

Consider claim 17, (Currently Amended) Young discloses apparatus for operating a node in a point-to-multipoint wireless communication network **(see the abstract)**, said apparatus comprising:

a physical layer block that receives a measured delay and a system slot time from another node **(see col 2 lines 35-67, col 3 lines 1-5, col 5 lines 20, col 6 lines 50-67, col 7 lines 1-5, 50-55, col 8 lines 37-50)**; and

a MAC layer processor that uses aid measured delay and said system slot time to coordinate transmissions and reduce the probability of collision in a CSMA/CA scheme **(figure 2, col 1 lines 35-40, col 5 lines 35-40, 50-67)**, wherein contention timing boundaries are aligned based on said measured link delay and said slot time **(col 4 lines 25-45, col 8 lines 55-67, col 9 lines 10-20, col 10 lines 1-40)**.

Young does not specifically show link delays however Young discloses a method and system for improving system throughput where station transmission delays are collected, stations communicate RTS and CTS messages in order to set their NAV accordingly **(see Young, col 7 lines 48-55, col 8 lines 20-26),** thus Young discloses a system communication delays. Moerder teaches method and system for time synchronization in wireless communication, where Moerder clearly discloses system link delays **(see Moerder, col 2 lines 60-67, col 4 lines 1-24, col 6 lines 20-30)**, thus Moerder discloses link delays. Since Young and Moerder both teach a system and method for improving timing in a wireless link communication system, thus it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to modify Young's teachings by combining teachings of Moerder of transmission link delays over forward uplinks and forward downlinks between remote units and a hub station, so as to providing efficiency for data transmission in a wireless communication network comprising a plurality of remote units as taught by Moerder (see Moerder, col 1 lines 15-50).

Young as modified by Moerder does not show a common time slot, however, Young discloses method and system improving throughput in a network, where the system discloses calculation of the number of transmissions over the network, number of collisions taking into account of carrier sense collision **(see col 9 lines 20-67),** thus Young discloses system communication transmissions with time involved. Nemoto teaches radio communication system for calculating transmission timing as in time

slot units based on propagation time between terminals and a base station (see Nemoto, the abstract, col 2 lines 20-60, col 3 lines 30-67, col 4 lines 1-67), therefore Nemoto discloses a common time slot unit based on propagation time between terminals and a base station, thus Nemoto discloses a system time slot being calculated. Since Young, Moerder and Nemoto teach data communication system and method, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to modify teachings of Young, as modified by Moerder, and combining teaching of Nemoto about calculating of common time slot units based on propagation time between terminals and a base station, so as to improve radio communication allocation for a large number of users and preventing interference of communications between parties, preventing collisions of radio signals due to propagation delay difference, as discussed by Nemoto (see Nemoto, col 1 lines 10-67, col 2 lines 1-15).

Consider claim 18, (Currently Amended) Young discloses an apparatus for operating a point-to-multipoint wireless communication network, said apparatus comprising:

a delay counter that measures link delays between an access point and plurality of stations (**see figures 3 and 4, col 9 lines 20-35**);

a MAC layer processor that uses said measured delays to coordinate transmissions and reduce the probability of collision in a CSMA/CA scheme (**figure 2, col 1 lines 35-40, col 5 lines 35-40, 50-67**), distributes said measured link delays and said common time slot value within said point-to-multipoint wireless communication network (**col 2 lines 35-45, col 4 lines 60-67, col 5 lines 25-35**), uses said measured link delays to coordinate transmissions in a CSMA/CA scheme, and aligns contention timing boundaries based on said measured link delays and said time slot values (**col 4 lines 25-45, col 8 lines 55-67, col 9 lines 10-20, col 10 lines 1-40**).

Young does not specifically show link delays however Young discloses a method and system for improving system throughput where station transmission delays are collected, stations communicate RTS and CTS messages in order to set their NAV accordingly (**see Young, col 7 lines 48-55, col 8 lines 20-26**), thus Young discloses a system communication delays. Moerder teaches method and system for time synchronization in wireless communication, where Moerder clearly discloses system link delays

(**see Moerder, col 2 lines 60-67, col 4 lines 1-24, col 6 lines 20-30**), thus Moerder discloses link delays. Since Young and Moerder both teach a system and method for improving timing in a wireless link communication system, thus it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to modify Young's teachings by combining teachings of Moerder of transmission link delays over forward uplinks and forward downlinks between remote units and a hub station, so as to providing efficiency for data transmission in a wireless communication network comprising a plurality of remote units as taught by Moerder (see Moerder, col 1 lines 15-50).

Young as modified by Moerder does not show a common time slot, however, Young discloses method and system improving throughput in a network, where the system discloses calculation of the number of transmissions over the network, number of collisions taking into account of carrier sense collision (**see col 9 lines 20-67),** thus Young discloses system communication transmissions with time involved. Nemoto teaches radio communication system for calculating transmission timing as in time slot units based on propagation time between terminals and a base station (see Nemoto, the abstract, col 2 lines 20-60, col 3 lines 30-67, col 4 lines 1-67), therefore Nemoto discloses a common time slot unit based on propagation time between terminals and a base station, thus Nemoto discloses a system time slot being calculated. Since Young, Moerder and Nemoto teach data communication system and method, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to modify teachings of Young, as modified by Moerder, and combining teaching of Nemoto about calculating of common time slot units based on propagation time between terminals and a base station, so as to improve radio communication allocation for a large number of users and preventing interference of communications between parties, preventing collisions of radio signals due to propagation delay difference, as discussed by Nemoto (see Nemoto, col 1 lines 10-67, col 2 lines 1-15).

Consider claim 19, (Currently Amended) Young discloses an apparatus for operating a point-to-multipoint wireless communication network, said apparatus comprising:

means for measuring delays between a root bridge and a plurality of non-root bridges (**the abstract, col 2 lines 30-48, col 5 lines 4-9, disclosing network conditions, i.e., number of**

transmissions/receptions, collisions are monitored between stations and access point in within a WLAN);

means for using said measured delays to coordinate transmissions and reduce the probability of collision in a CSMA/CA scheme (**col 1 lines 55-64, col 2 lines 30-48, col 6 lines 50-67, col 7 lines 1-5),** wherein means for using comprises means for calculating a time slot value based on said measured link delays and distributing said measured link delays and said time slot value within said point-to-multipoint wireless communication network (**col 2 lines 35-45, col 4 lines 60-67, col 5 lines 25-35**); and means for aligning contention timing boundaries based on said measured link delays (**col 4 lines 25-45, col 8 lines 55-67, col 9 lines 10-20, col 10 lines 1-40**).

Young does not specifically show link delays however Young discloses a method and system for improving system throughput where station transmission delays are collected, stations communicate RTS and CTS messages in order to set their NAV accordingly (**see Young, col 7 lines 48-55, col 8 lines 20-26),** thus Young discloses a system communication delays. Moerder teaches method and system for time synchronization in wireless communication, where Moerder clearly discloses system link delays (**see Moerder, col 2 lines 60-67, col 4 lines 1-24, col 6 lines 20-30)**, thus Moerder discloses link delays. Since Young and Moerder both teach a system and method for improving timing in a wireless link communication system, thus it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to modify Young's teachings by combining teachings of Moerder of transmission link delays over forward uplinks and forward downlinks between remote units and a hub station, so as to providing efficiency for data transmission in a wireless communication network comprising a plurality of remote units as taught by Moerder (see Moerder, col 1 lines 15-50).

Young as modified by Moerder does not show a common time slot, however, Young discloses method and system improving throughput in a network, where the system discloses calculation of the number of transmissions over the network, number of collisions taking into account of carrier sense collision (**see col 9 lines 20-67),** thus Young discloses system communication transmissions with time involved. Nemoto teaches radio communication system for calculating transmission timing as in time slot units based on propagation time between terminals and a base station (see Nemoto, the abstract,

col 2 lines 20-60, col 3 lines 30-67, col 4 lines 1-67), therefore Nemoto discloses a common time slot unit based on propagation time between terminals and a base station, thus Nemoto discloses a system time slot being calculated. Since Young, Moerder and Nemoto teach data communication system and method, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to modify teachings of Young, as modified by Moerder, and combining teaching of Nemoto about calculating of common time slot units based on propagation time between terminals and a base station, so as to improve radio communication allocation for a large number of users and preventing interference of communications between parties, preventing collisions of radio signals due to propagation delay difference, as discussed by Nemoto (see Nemoto, col 1 lines 10-67, col 2 lines 1-15).

Consider claim 20, (Currently Amended) Young discloses a computer-readable medium storing computer executable instructions for operating a point-to-multipoint wireless communication network, said instructions comprising:

code that causes measurement of said link delays between a root bridge and a plurality of non-root bridges **(the abstract, col 2 lines 30-48, col 5 lines 4-9, , col 10 lines 45-67, col 11 lines 1-3, disclosing network conditions, i.e., number of transmissions/receptions, collisions are monitored between stations and an access point in within a WLAN)**; and

code that causes use of said measured link delays to coordinate transmissions and reduce the probability of collision in a CSMA/CA scheme **(col 1 lines 55-64, col 2 lines 30-48, col 6 lines 50-67, col 7 lines 1-5, col 10 lines 45-67, col 11 lines 1-3, describing usage of the monitored condition of network traffic load)**,

wherein said measured link delays is used in calculating a time slot value based on said measured link delays **(col 2 lines 35-45, col 4 lines 60-67, col 5 lines 25-35),** and distributed along with said time slot value within said point-to-multipoint wireless communication network **(col 2 lines 35-45, col 4 lines 60-67, col 5 lines 25-35)**; and

code that causes alignment of contention timing boundaries based on said measured link delays and said common time slot values **(col 4 lines 25-45, col 8 lines 55-67, col 9 lines 10-20, col 10 lines 1-40)**.

Young does not specifically show link delays however Young discloses a method and system for improving system throughput where station transmission delays are collected, stations communicate RTS and CTS messages in order to set their NAV accordingly (**see Young, col 7 lines 48-55, col 8 lines 20-26),** thus Young discloses a system communication delays. Moerder teaches method and system for time synchronization in wireless communication, where Moerder clearly discloses system link delays (**see Moerder, col 2 lines 60-67, col 4 lines 1-24, col 6 lines 20-30)**, thus Moerder discloses link delays. Since Young and Moerder both teach a system and method for improving timing in a wireless link communication system, thus it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to modify Young's teachings by combining teachings of Moerder of transmission link delays over forward uplinks and forward downlinks between remote units and a hub station, so as to providing efficiency for data transmission in a wireless communication network comprising a plurality of remote units as taught by Moerder (see Moerder, col 1 lines 15-50).

Young as modified by Moerder does not show a common time slot, however, Young discloses method and system improving throughput in a network, where the system discloses calculation of the number of transmissions over the network, number of collisions taking into account of carrier sense collision (**see col 9 lines 20-67),** thus Young discloses system communication transmissions with time involved. Nemoto teaches radio communication system for calculating transmission timing as in time slot units based on propagation time between terminals and a base station (see Nemoto, the abstract, col 2 lines 20-60, col 3 lines 30-67, col 4 lines 1-67), therefore Nemoto discloses a common time slot unit based on propagation time between terminals and a base station, thus Nemoto discloses a system time slot being calculated. Since Young, Moerder and Nemoto teach data communication system and method, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to modify teachings of Young, as modified by Moerder, and combining teaching of Nemoto about calculating of common time slot units based on propagation time between terminals and a base station, so as to improve radio communication allocation for a large number of users and preventing interference of communications between parties, preventing collisions of radio signals due to propagation delay difference, as discussed by Nemoto (see Nemoto, col 1 lines 10-67, col 2 lines 1-15).

Consider claim 5, (original) The method of **claim 1,** Young, as modified by Moerder, further teaches wherein measuring and using are performed by said root bridge **(col 1 lines 40-45, col 5 lines 20-34).**

Consider claim 6, (original) The method of **claim** 1, Young, as modified by Moerder, further teaches wherein measuring and using are performed by one of said non-root bridges **(col 4 lines 50-60, col 7 lines 20-43).**

Consider claim 7, (original) The method of **claim 1 Young, as modified by Moerder, further teaches** wherein using comprises:

assigning transmission deferral times to said non-root bridges based on said measured link delays to give access preference to more distant ones of said non root bridges **(col 5 lines 40-50, col 6 lines 52-67).**

Consider claim 14, (original) The apparatus of **claim 10** Young, as modified by Moerder, further teaches wherein said node is said root bridge **(col 1 lines 20-35).**

Consider claim 15, (original) The apparatus of **claim 10** Young, as modified by Moerder, further teaches wherein said node is one of said non-root bridges **(col 1 lines 20-35).**

Consider claim 16, (original) The apparatus of **claim 10**, Young, as modified by Moerder, further teaches wherein said MAC layer processor assigns transmission deferral times to said non-root bridges based on said measured link delays to give access preference to more distant ones of said non-root bridges **(col 2 lines 35-45, col 4 lines 60-67, col 5 lines 25-40, col 5 lines 40-50, col 6 lines 52-67).**

Consider claim 21 (Previously Presented): The method of claim 1 Young, as modified by Moerder, further teaches wherein coordinating transmissions comprises adjusting a network allocation vector time (**see col 8 lines 25, col 9 lines 47-52).**

Consider claim 22 (Previously Presented), The method of claim 1, Young, as modified by Moerder, further teaches:

receiving a disassociation request message from one of said plurality of non-root bridges (**col 8 lines 12-36, col 9 lines 1-20, col 10 lines 8-9);**

deleting the non-root bridge from a non-root bridge list (**col 4 lines 27-60, col 8 lines 12-36, col 9 lines 1-20, col 10 lines 8-9);**

updating said common time slot value (**col 2 lines 35-45, col 4 lines 60-67, col 5 lines 25-35**); and

distributing said updated time slot value to said plurality of non-root bridges (**col 2 lines 35-45, col 4 lines 60-67, col 5 lines 25-35).**

Consider claim 23, (Previously Presented) The method of claim 1 Young, as modified by Moerder, further teaches:

receiving an association request message from a new non-root bridge that wants to join the point-to-multipoint wireless communication network (**col 8 lines 12-36, col 9 lines 1-20**); and

measuring link delays between said root bridge and said new non-root bridge (**col 2 lines 35-45, col 4 lines 60-67, col 5 lines 25-35).**

Consider claim 24 (Previously Presented), The apparatus of claim 10 Young, as modified by Moerder, further teaches wherein said link delays are measured based on departure and arrival times of Request to Send and Clear to Send frames (**see col 8 lines 10-25).**

Consider claim 25 (Previously Presented), The apparatus of claim 10 Young, as modified by Moerder, further teaches wherein said common slot value is calculated based on a longest measured link delay (**see col 8 lines 10-25).**

Consider claim 26 (Previously Presented), The apparatus of claim 18 Young, as modified by Moerder, further teaches wherein the MAC layer processor is configured to set a network allocation vector of each set of multiple access collision avoidance packets (**see col 8 lines 10-25, col 9 lines 10-20, 45-67, col 10 lines 1-18).**

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HUY C. HO whose telephone number is (571)270-1108. The examiner can normally be reached on Monday - Friday, 8:00 a.m. - 5:00 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Edouard can be reached on 571-272-7603. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Huy C Ho/
Examiner, Art Unit 2617

/Patrick N. Edouard/

Supervisory Patent Examiner, Art Unit 2626